

## REMARKS

Reconsideration is respectfully requested.

## INTERVIEW SUMMARY

A telephonic interview was held with the Examiner and his Primary Supervisor, Mr. Samuel Barts, on October 4, 2007. Applicants, by the undersigned, express their appreciation for the courteous and thoughtful interview. No issue was reached. The USPTO maintained its alleged *prima facie* case of obviousness, citing KSR. Notwithstanding the USPTO's search and rejections, applicants' election of species has been criticized; should the PTO have "reasons" for the criticism, applicants respectfully request that the PTO set forth the reasons.

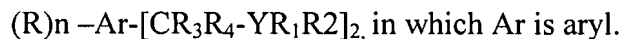
## AUGUST 29, 2007 OFFICE ACTION

Applicants respectfully traverse the rejection of the claims over US 4,960,949 [hereinafter '949] in view of Eastman [the Eastman reference is discussed at the end of this paper].

It is noted that the structures in the rejected claims are not homologs of the '949 compounds, in the classical sense; specifically, applicants' opinion is that the structures in the rejected claims are not homologs of the compounds relied upon by the PTO in the '949 reference: In this respect, applicants rely upon definition of a homologous series, and homolog, as defined in pertinent part, in a classical text book:

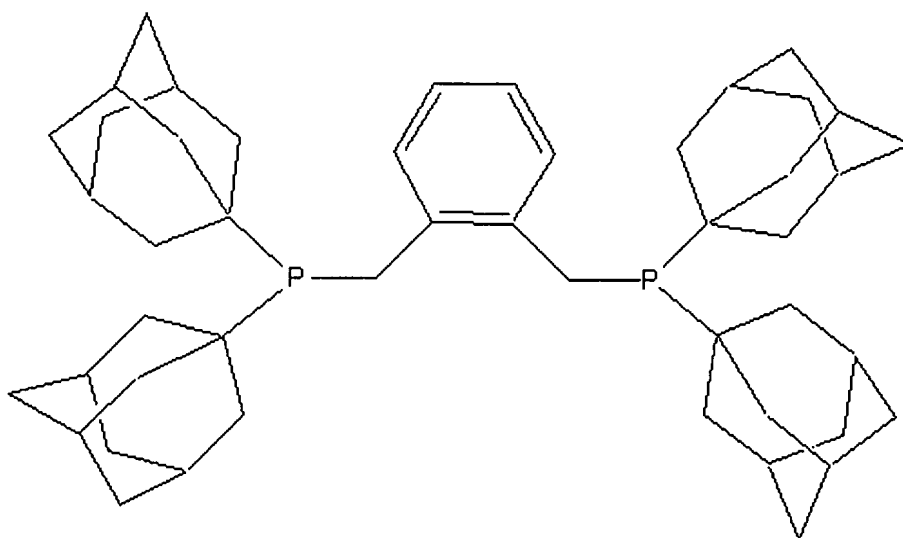
"A series of compounds in which each member differs from the next member by a constant amount is called a homologous series and the members of the series are called homologs...The family of alkanes forms such a homologous series, the constant difference between successive members being CH<sub>2</sub>." Morrison and Boyd, ORGANIC CHEMISTRY, Allyn & Bacon pp 64-65 (1959).

That is, the USPTO relies upon column 3, line 20 *et seq.* of the '949. Therein R<sub>1</sub> and R<sub>2</sub> are defined as follows: "each R<sub>1</sub> and R<sub>2</sub> is independently selected from alkyl, aryl, aralkyl, alkaryl, cycloaliphatic radicals, and substituted derivatives thereof...each aryl group contains 6-10; each cycloaliphatic group contains from 4-8 ring carbon atoms." Those R<sub>1</sub> and R<sub>2</sub> are substituents on a bidentate ligand having the structure ['949, Column 2]:



The cycloaliphatic group is not defined, in the '949 reference, to contain 10 carbon atoms. Moreover, the '949 definition of cycloaliphatic group in the '949 does not require that any species comprehended thereby contain a tertiary carbon atom.

A specifically required element of the claimed structures is the adamantyl group, to wit, s+u= 1. In addition the adamantyl group requires at least 10 carbon atoms.



Lastly, the adamantyl group is a cage structure as schematically shown above.

Those cycloaliphatic groups of Devon et al. necessarily have "4-8 ring carbons" as detailed on column 3, lines 27-28 and as claimed in claim 1 of Devon et al.; the '949 cycloaliphatics do not structurally differ from each other in the same way that the members of the genus embracing "adamantyl" differ from each other.

In addition, the U.S. PTO relies upon column 15 disclosure in Devon et al. '949, which in turn refers to TABLE 8 of Devon et al. '949. This reliance appears to be based solely on the phrase "sterically hindered", at e.g. column 15, lines 39- 40; the phrase however is applied to monodentate(s) as the compounds designated in Column 15 are stated to be "sterically hindered monodentate". That phrase does not embrace the compounds of the rejected claims. None of the compounds in Devon et al Column 15, and in TABLE 8 are adamantyl or cage structures.

TABLE 8 of the '949 presents monodentates with various aryl substitution or tri-n-octylphosphine or tricyclohexylphosphine. Please see column 15, lines 10-25. None

are the compounds in Devon et al. Column 15, and in TABLE 8 are adamantyl or cage structures.

If the PTO tries to compare applicants' use of the word "bidentate" to "bidentate" in Table 8 and column 15, that comparison is misplaced. In the '949, Table 8 presents a **study of mixtures**: Specifically, the bidentate ligand  $\alpha,\alpha'$  bis(-diphenylphosphino)-o-xylene is the only bidentate in Table 8 and it is used in combination with any one of various **monodentate phosphorus ligands** [cf. column 14, lines 30 *et seq.*]. It is the effect of the various monodentate phosphorus ligands on one bidentate compound which is being examined.

Thus, the TABLE 8 charts the effects of different monodentate phosphorus ligands on a single chelating ligand  $\alpha,\alpha'$  bis(-diphenylphosphino)-o-xylene which is not varied. Table 8 and the cited passage, clearly refer to the addition of various monodentate phosphines: The USPTO comment about steric hindrance clearly relates to a comparison of the results of various monodentate phosphines in Table 8. The bidentate phosphine remains the same in Table 8 so no comparison of steric effects for the bidentate phosphine is made. Clearly, there is no such motivation to change the cycloalkyl groups of column 3 in Devon et al. and certainly no motivation to make such an obscure series of selections and amendments.

In fact, careful scrutiny of the results in Table 8 with respect to the monodentate TCHP does not recommend it over the aryl substituted monodentate TBP.

There is no teaching whatsoever in Devon et al. of a cycloaliphatic group with tertiary carbon atoms, and/or with 10 ring atoms and/or joined to the phosphorus via one

of the tertiary carbon atoms. Thus none of disclosure of Devon et al. extends to adamantyl radicals.

Applicants respectfully traverse the grounds of rejection of the claims over Devon et al. '949 in view of Eastman. The USPTO 's reliance on Eastman does not make up for the deficiencies of Devon et al. as Eastman does not relate to the catalyst system of the elected invention; rather the PTO relies on Eastman's polymeric dispersant dissolved in a liquid carrier. However, a polymeric dispersant and a liquid carrier are irrelevant [not recited in] in the rejected catalyst claims. In summary it is Applicants' view that the USPTO has not carried its burden of establishing a prima facie case of obviousness of either the claims or of the elected species.

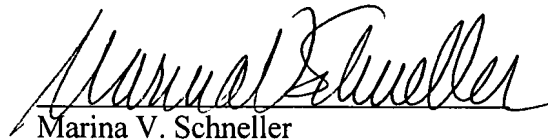
As to a determination of the level of skill, one of the inventors advised applicants' British representatives, who in turn advised the undersigned on October 24, 2007, that the state of the art, as evidenced by WO 96/19434, does not lead to the invention, as claimed; WO 96/19434 was cited in the Information Disclosure Statement of November 17, 2005 and considered by the Examiner 03/20/07. Specifically, the inventor indicates that comparative examples in WO 96/19434, example 7 and 8 in particular, reflect that the use of a cyclohexyl group linked to the phosphorus is particularly disadvantageous to rate, turnover number and selectivity compared to e.g. the t-butyl group in WO96/19434. In the present case, adamantyl has compared very advantageously with t-butyl – see table 3. Accordingly, in the inventor's view, if a skilled person had experimented with cyclohexyl, he would have found a poor rate, poor turnover number and poor selectivity as per example 8 of WO96/19434 and there seems to be no motivation for him to continue to alter/amend the structure of C4-C8 cycloalkyl in the several respects

proposed by the Examiner. The results of the WO 96/19434 are probative under In re Fenn [208 USPQ 470 (CCPA 1980)], In re Fouche [439 F.2d 1237(CCPA 1971)] and In re Grasselli [713 F.2d 731(Fed. Cir. 1983)].

An early allowance is respectfully solicited.

Respectfully submitted,

Date: Nov 16 2007



Marina V. Schneller

Registration No. 26032

VENABLE LLP

P.O. Box 34385

Washington, D.C. 20043-9998

Telephone: (202) 344-4000

Telefax : (202) 344-8300

MVS/trs

DC2DOCS1/899297